WHAT IS CLAIMED IS:

1. A hydrocarbon conversion system for converting normally gaseous light hydrocarbons into heavier hydrocarbons, which are liquid or solid or gaseous at standard temperature and pressure, the system comprising:

a turbine unit having a compressor and an expander;

a first synthesis gas subsystem having a first feedstock inlet for receiving normally gaseous light hydrocarbons and a first synthesis gas outlet, the first synthesis gas subsystem for preparing synthesis gas;

a second synthesis gas subsystem thermally coupled to the expander for receiving thermal energy from the expander and having a second feedstock inlet for receiving light hydrocarbons, a steam/water inlet, and a second synthesis gas outlet, the second synthesis gas subsystem for preparing synthesis gas, and wherein the second synthesis gas subsystem comprises a steam reformer; and

a Fischer-Tropsch synthesis subsystem having a synthesis gas inlet fluidly coupled to the first synthesis gas subsystem and fluidly coupled to the second synthesis subsystem for receiving synthesis gas from the first synthesis gas outlet and the second synthesis gas outlet and having a product outlet for emitting heavier hydrocarbons.

2. The system of Claim 1 wherein the first synthesis gas subsystem comprises an autothermal reformer and wherein the first synthesis gas

subsystem is coupled to the compressor of the turbine for receiving compressed air therefrom.

3. The system of Claim 1 wherein the first synthesis gas subsystem comprises a partial oxidation reactor.

4. The system of Claim 1 wherein the first synthesis gas subsystem comprises an autothermal reformer reactor.

5. The system of Claim 1 wherein the first synthesis gas subsystem comprises an autothermal reformer and wherein the first synthesis gas subsystem is coupled to the compressor of the turbine for receiving compressed enriched air therefrom.

6. The system of Claim 1 further comprising a duct burner thermally coupled to the second synthesis gas subsystem for enhancing the thermal energy from the turbine before delivery to the second synthesis gas subsystem.

7. The system of Claim 1 wherein the turbine further comprises a combustor, and wherein the combustor comprises the first synthesis gas subsystem that is an autothermal reformer.

8. The system of Claim 7 wherein the turbine comprises a gas turbine.

9. The system of Claim 1 further comprising:

a third synthesis gas subsystem having a third feedstock inlet for receiving light hydrocarbons and a third synthesis gas outlet, the third synthesis gas subsystem thermally coupled to the first synthesis gas subsystem for receiving thermal energy therefrom; and

wherein the third synthesis gas subsystem is fluidly coupled to the Fischer-Tropsch synthesis subsystem.

10. A method for converting normally gaseous hydrocarbons into heavier hydrocarbons that are normally solid or liquid at standard temperature and pressure, the method comprising the steps of:

preparing a synthesis gas in a first synthesis gas generator;

preparing a synthesis gas in a second synthesis gas generator that is a steam reformer;

delivering thermal energy from a turbine to the steam reformer;

delivering the synthesis gas from the first synthesis gas generator and the steam reformer to a Fischer-Tropsch unit; and

converting synthesis gas to heavier hydrocarbons in the Fischer-Tropsch unit.

11. The method of Claim 10 wherein the first synthesis gas generator is an autothermal reformer and further comprising the steps of:

compressing air with a compressor;

delivering the compressed air from the compressor to the autothermal reformer;

combusting a fuel in a combustor with air;

expanding gases from the combustor in an expander; and

transmitting energy from the expander to the steam reformer to provide at least a portion of the energy required therein for conversion of feedstocks to synthesis gas.

12. The method of Claim 11 further comprising the step of disposing of wastewater by using it in the steam reformer.

13. The method of Claim 10 further comprising the step of:

preparing a synthesis gas in a third synthesis gas generator that is thermally coupled to the first synthesis gas generator; and

delivering the synthesis gas from the third synthesis gas generator to the Fischer-Tropsch unit.

14. A hydrocarbon conversion system for converting normally gaseous light hydrocarbons into heavier hydrocarbons, which are liquid or solid or gaseous at standard temperature and pressure, the system comprising:

a compressor for receiving air and compressing the air;

a first synthesis gas system coupled to the compressor for receiving air therefrom, for receiving light hydrocarbons, and for producing a synthesis gas;

an expander coupled to the first synthesis gas subsystem for receiving synthesis gas therefrom;

a second synthesis gas subsystem for receiving light hydrocarbons and forming synthesis gas;

a synthesis subsystem fluidly coupled to the expander for receiving synthesis gas therefrom and also fluidly coupled to the second synthesis gas subsystem for receiving synthesis gas therefrom and producing heavier hydrocarbons and a tail gas; and

the second synthesis gas subsystem further comprising a duct burner and wherein the second synthesis gas subsystem is fluidly coupled to the synthesis system for receiving a tail gas for use in the burner.